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ABSTRACT

This illustrated leader's guide describes activities for teaching children to use field guides to identify trees and birds. Background information for leaders explains the two types of field guides, those that use a series of steps in what is called a key to identify things in nature, such as trees, and those that use groupings based on similarities in the way living things look, act, and where they live, such as birds. Children need copies of field guides for trees and birds to complete some of the activities in the handbook. The six activities in the guide begin with exercises in sorting and making a simple key and gradually progress to activities in which children use actual field guides. Each activity lists: (1) objective; (2) materials needed; (3) instructions for completing the activity; and (4) a discussion of the activity. The guide also contains additional activities, a reproducible field guides project record, references for further information, and activity sources. Numerous black and white drawings accompany the text. (KS)

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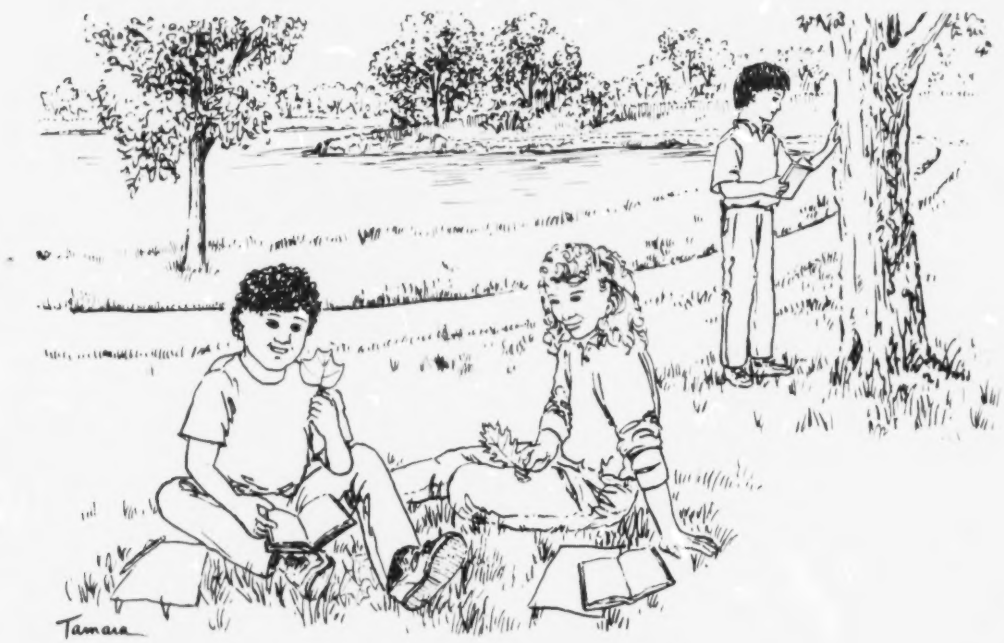
4-H NATURAL RESOURCES

# Field Guides Made Easy

Diane Held Phillips
and Marianne E. Krasny




4-H Leader's Guide L-5-21
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## Contents


| | |
|---|---|
| Introduction | 1 |
| Activity 1A: Sorting People | 6 |
| Activity 1B: Making a Key for Identifying Shoes | 7 |
| Activity 2: Making a Key for Identifying Trees | 8 |
| Activity 3: Identifying Birds | 10 |
| Activity 4: Using Tree and Bird Field Guides | 12 |
| Activity 5: Identification Scavenger Hunt | 13 |
| Additional Activities | 14 |
| Project Record | 15 |
| For Further Information | 18 |

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*Helping You Put Knowledge to Work*


Diane Held Phillips was an extension associate in the Department of Natural Resources and is now a program consultant with Cornell Cooperative Extension.

Marianne E. Krasny is assistant professor and extension leader in the Department of Natural Resources and New York State program leader for the 4-H Natural Resources Program.

Illustrations by Tamara Sayre



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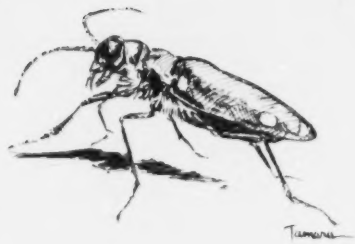
# Introduction

## Background

Whenever you are outdoors in a woods, in a park, or on a city street, you are surrounded by a variety of living and nonliving things—birds, insects, trees, flowers, rocks, and much more. Most people know the names of a few birds, insects, flowers, and trees. Some even know the names of several types of rocks and minerals. Not many, however, can identify the majority of the living and nonliving things they see outdoors. Being able to identify plants and animals as well as nonliving parts of nature is the first step toward understanding more about natural history.



Easy-to-use field guides are available for identifying all kinds of living and nonliving things in nature. There are field guides to birds and their nests, flowers, trees, animal tracks, mammals, reptiles and amphibians, insects, and rocks. Field guides are organized in a variety of ways. All guides, however, require that you pay close attention to individual characteristics of the plant, animal, or object you are trying to identify. Color, shape, and size are important characteristics to note. Paying close attention to differences between two plants or two animals will also help in the identification process.

In this project, you will learn how to use field guides to identify trees and birds. The tree guide you will use represents a type of field guide that uses a *key*. Bird guides use a different method of identification, which is based on grouping things with similar characteristics. Once you and your youth group have learned how to use these two types of field guides, it will be easy for you to learn to use other guides to identify things in nature.

### Identifying Trees: Using a Key

Most field guides for tree identification use a series of steps in what is called a key. By following the series of steps in the key, you can "unlock" the identity of the tree. Each step in the key asks you to choose one of several categories based on a characteristic of the tree you are identifying, such as the shape of the leaves or the feel of the bark. After you have made the first choice, you will be asked to make another choice, and so on. Eventually, sometimes after only one or two choices and other times after a number of choices, you will come to the name of the tree.

Using a key to identify trees is a lot like sorting people by height, hair type, and eye color. In fact, in Activity 1 in this project you will ask the members of your group to sort themselves by these characteristics.

*A Field Guide to Trees and Shrubs*, one of the Peterson guide series, is a good book to begin your adventure in tree identification. Several other field guides, including those put out by the Audubon Society and others in the Peterson series, may also be used. They should be available from your local library or bookstore. (See the section For Further Information, Field Guides at the end of this guide.) You will need a copy of a field guide to trees to do Activities 2, 4, and 5 in this project.

## A Sample Key

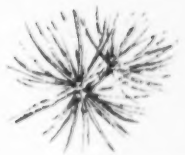
**1.** Leaves needlelike or scalelike

**2.** Leaves needlelike

**3.** Leaves borne in clusters

Needles in clusters of two (red pine)

Needles in clusters of five (white pine)



Needles in clusters of more than five (larch)

**3.** Needles borne singly

**4.** Needles without stems

Needles with four sides in cross section and sharp points (spruce)

Needles that are flat and have blunt points (fir)

**4.** Needles with short stems

Needles that are flat and have blunt points (hemlock)

**2.** Leaves scalelike

White cedar

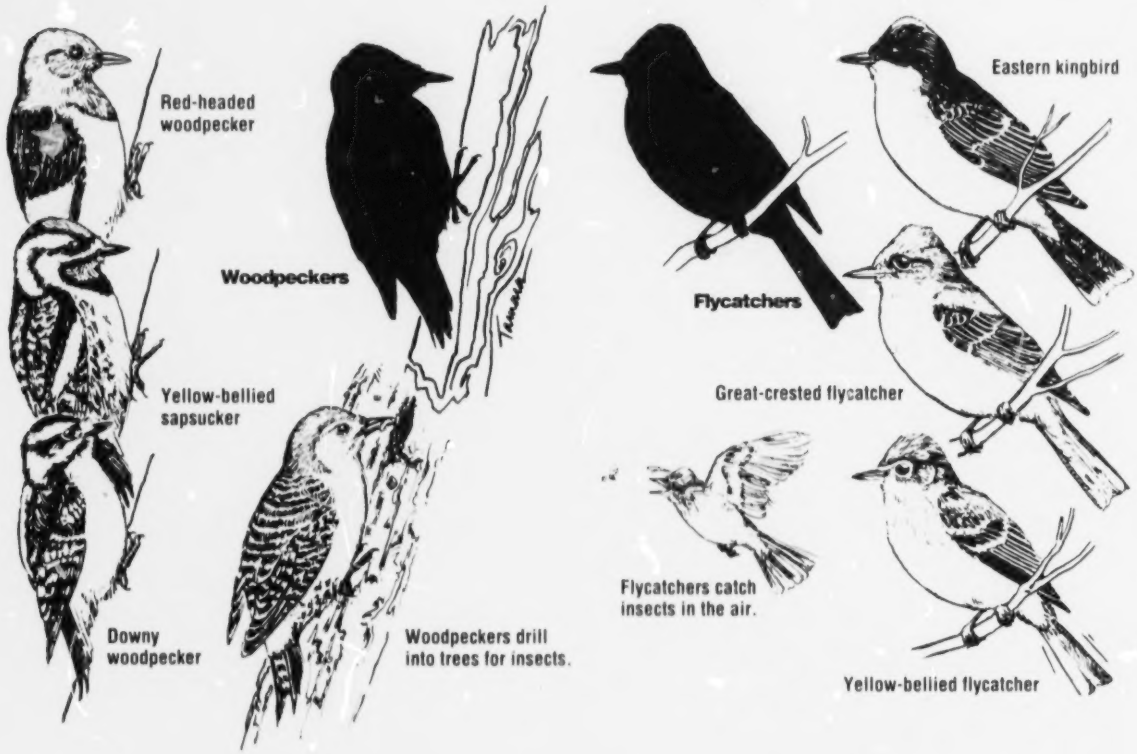
## Identifying Birds: Grouping

Field guides for identifying birds are different from those used for identifying trees. Birds are arranged in the guides based on similarities in the way they look and act and in where they live. Therefore, when using a field guide to birds, you need to become familiar with the different sections of the guide. Each section has pictures and descriptions of birds of the same general shape, size, and habits. To identify a bird, turn to the section that has pictures and descriptions of birds similar to your specimen. When you find the correct section of the guide, study the various pictures and descriptions until you identify the bird you saw.

Birds generally are colorful and have many interesting behaviors and habits that help you identify them. Remember, when identifying birds pay close attention to the following features:

- General shape of the bird: Is it plump, long and thin, or small and round?
- General size of the bird: Is it about the size of a sparrow, a robin, or a crow?
- Color and markings: What colors are the bird's feathers? Does it have distinctive markings, such as a stripe above the eye or a patch of color on the wing?
- Behavior: Is the bird flitting about in the trees? Is it soaring high above the ground? Is it building a nest? Is it eating seeds? Is it singing? How does its song sound?
- Area where you see the bird: Is it in the woods, in a field, or in the water?

Remember, being observant is important in identifying birds and other living and nonliving things.




**Birds are arranged in field guides based on similarities in the way they look and act and in where they live.**

*A Guide to Field Identification: Birds of North America*, one of the Golden guide series, is a good book to begin your adventure in bird identification. Several other field guides, including those put out by the Audubon Society and those by Roger Tory Peterson, may also be used. They should be available from your local bookstore or library. (See the section For Further Information, Field Guides at the end of this guide.) You will need a copy of a field guide to birds to conduct Activity 4.

### Using Keys versus Grouping

When identifying things in nature, many people prefer to leaf through the pictures in a field guide rather than follow the steps in a key. For this reason, many beginning field guides use groupings of items with similar characteristics instead of keys. For example, a beginner's wildflower guide may group together flowers of similar colors. To identify a particular flower, you just need to leaf through the pictures of flowers that are the color of your specimen until you find a picture of a flower similar to yours. More advanced wildflower guides, on the other hand, use keys for identification.

## Getting Started

Now that you understand how to use two types of field guides, you are ready to help the members of your group learn about field guides. Remember, it is okay, and even desirable, for you to learn with the youth. You do not have to be an expert!

In fact, this project is designed for youth group leaders, camp counselors, teachers, and parents with little or no background in natural history or in identifying things found in nature. Reading the project introduction and the short introductions to each activity will be enough to prepare you to help youth learn the basic principles of identification.

### Questions to Stimulate Interest

Before beginning the activities, hold a brief orientation session with the youths in your group. To stimulate their interest, ask them some or all of the following questions.

- Have you ever noticed a tree along a street, in a woods, or in a park and wondered what kind it is?
- Have you ever seen a bird at a bird feeder, on a building, or in a tree and wondered what kind it is?
- Have you ever seen tracks along a stream and wondered what animal made them?
- Have you ever picked up an interesting rock and wondered what it is called?
- Have you ever wondered why a plant grows where it does or why an animal is acting in a strange way?
- Have you ever wondered how people survive in the woods when they are lost for days?
- Have you ever wanted to attract certain animals to your backyard to look more closely at them?

Members of your group who answer "yes" to any of these questions will be interested in knowing how to identify the things they see and find in nature. Ask them to list some reasons they might want to identify plants, animals, and other living and nonliving things. Possible responses are listed below.

- Identifying a plant or animal is the first step toward understanding more about it.
- When backpacking or hiking in the woods, it may be important to identify plants to eat and poisonous plants to avoid.
- Being able to identify birds or other animals can help us figure out what the animals eat, where they live, and what attracts them.
- Because animals use many plants for both food and shelter, being able to identify plants can help us find and attract animals.
- We like knowing what it is we are observing.

Ask your group the following questions. Possible responses follow the questions.

- How might you learn the name of a plant or animal?

  By asking an expert.

  By using a field guide.

- Name some things that you can use field guides to identify.

  Trees, birds, flowers, animals, fish, animal tracks, rocks, and insects.

Now that you have introduced the project to the youths in your group, you are ready to begin the activities. Each of the following five activities is assigned to take about 45 minutes. Be sure to do the activities in the order they are listed in the project because the later activities build on the beginning ones.

## Ethics and Safety

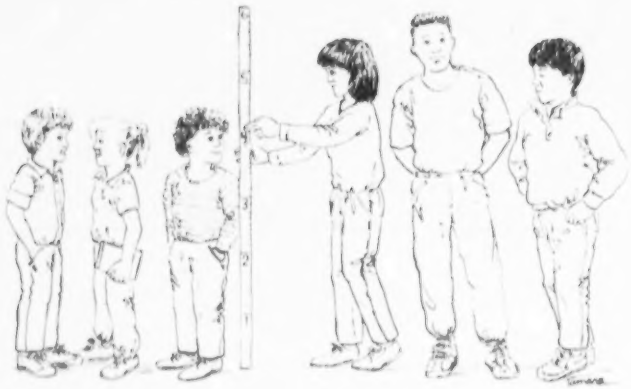
Before you begin, there are several important things you need to consider. Do not collect any plants or animals, live or dead. It is illegal to collect many wild plants and most wild animals without a special permit. Also, learn to identify poison ivy and poison oak and avoid them. Some members of your group may be sensitive to these plants.

When your group is identifying birds and other animals, remind them to be quiet and not disturb the animals. When they are identifying plants, make sure they pick only the leaves that are necessary to identify the plant and do not unduly damage it.

**Poison ivy is a vine or shrub with three leaflets on a long stalk and no thorns. The leaves may be smooth or toothed.**

## Activity 1A:
# Sorting People

In this activity the youths in your group will sort themselves into groups based on certain physical characteristics. Before they begin, talk about field guides and explain to them that field guides work by focusing on specific characteristics of the object being identified.



### What Youth Discover

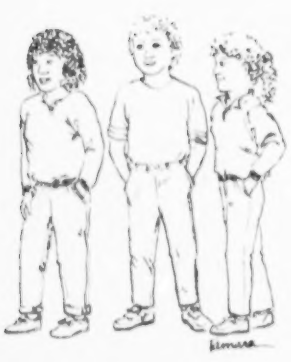
Living things can be divided into categories based on their characteristics.

### What You Need

- a marker or chalk
- newsprint or a chalkboard
- a pencil or pen for each youth
- a project record sheet for each youth

### What to Do

1. Copy the following onto the newsprint or chalkboard:
   - a. under 4 feet (120 cm.) tall
     - b. curly hair
       - c. brown eyes
       - c. blue eyes
       - c. hazel or green eyes
     - b. straight hair
       - c. brown eyes
       - c. blue eyes
       - c. hazel or green eyes
   - a. over 4 feet (120 cm.) tall
     - b. curly hair
       - c. brown eyes
       - c. blue eyes
       - c. hazel or green eyes
     - b. straight hair
       - c. brown eyes
       - c. blue eyes
       - c. hazel or green eyes
2. Give each youth a pencil or pen and a project record sheet.
3. Have the youths in your group sort themselves using the list above. First they should form two groups, one of youths who are under 4 feet (120 centimeters) tall and the other of youths who are over 4 feet (120 centimeters) tall. Then, each of those two groups should divide into two groups, one of youths with curly hair and one of youths with straight hair. Each of those groups should then divide into groups of youths with brown, blue, and hazel or green eyes.
4. Have each youth complete section 1A of the project record sheet.



### Discussion

This activity helps youth learn that field guides work by focusing on specific characteristics of the object being identified. In this case, the youth looked at characteristics of people. A field guide to trees is set up in a similar way, only it uses characteristics of trees rather than of people. When using a field guide to trees, the youth will choose among a number of characteristics, then choose again among other characteristics, and so on until they come to the name of the tree.

## Activity 1B:
# Making a Key for Identifying Shoes

Now it's time to give the youth a chance to make their own identification key. They will make a key for identifying their shoes.

### What Youth Discover

How to make a key to identify non-living or living things.

### What You Need

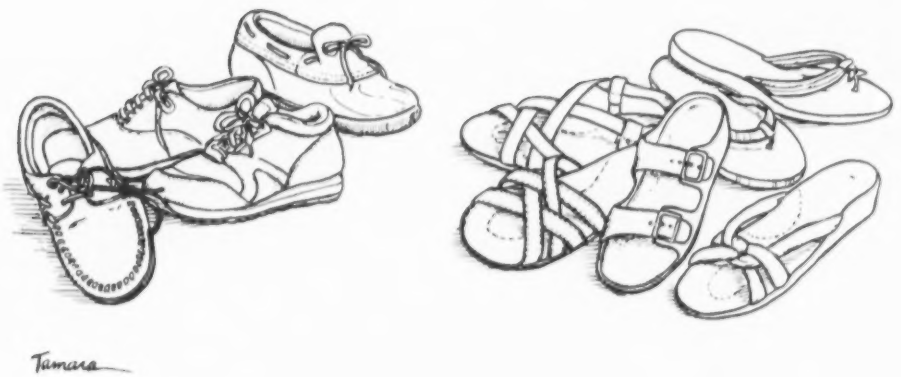
- a pencil or pen for each youth
- a project record sheet for each youth
- a marker or chalk
- newsprint or a chalkboard

### What to Do

1. Give each youth a pencil or pen and a project record sheet.
2. Ask each youth to take off his or her left shoe and place it with the other shoes.
3. Have the youth list the characteristics of the shoes (for example, leather/canvas, light colored/dark colored, laces/no laces). Write the list on the newsprint or chalkboard.
4. Have the youth divide the shoes into groups based on the characteristics listed. For example, put all the leather shoes in one pile and all the cloth shoes in another pile; then divide the leather shoes into light- and dark-colored groups and the cloth shoes into light- and dark-colored groups, and so on.
5. Eventually, each shoe should be by itself. If several shoes are still together, have the youth describe more characteristics to separate them.
6. Have each youth complete section 1B of the project record sheet.

### Discussion

Now that the youth have had an opportunity to make their own simple key for identifying shoes, they should be able to understand how a tree identification key works. In Activity 2, they will make a key for identifying trees.



Tamara

## Activity 2:

# Making a Key for Identifying Trees

It's time to move ahead and have fun by making a simple field guide. You need to do some homework before doing this activity with the youths. Go out and identify six different trees that are located within a reasonable walking distance from each other. See if you can identify the trees using a tree field guide. The members of your group will make a simple identification key to differentiate between the trees you choose.

### What Youth Discover

How to make a simple key to identify trees.

### What You Need

- a field guide to trees
- six lengths of ribbon or survey tape
- a marker
- a pencil or pen for each youth
- a project record sheet for each youth
- a notepad for each group of three youths

**When identifying a tree, look at the cones or fruit, the leaf shape, the bark, and the shape of the tree.**

## What to Do

1. Choose six common trees. If you don't already know the names of the trees, try to identify them using the tree field guide. Put a ribbon with a number on it on each tree.
2. Give each youth a pencil or pen and a project record sheet.
3. Divide the youths into groups of three and give each group a notepad.
4. Have the youth go up to each tree you chose and touch it, smell it, examine the bark, and note the colors, shapes, and sizes of the leaves and fruits. Have them write down everything they notice about each of the trees.
5. Have the youth walk a short distance from each tree and note the general shape of the tree and any other features that seem important. Have them add these features to their description of the tree.
6. Ask the youth to compare the trees by describing which characteristics are similar and which are different.
7. Have each group make a key to identify each of the trees. Point out that this process is similar to what they did in Activity 1 with people and shoes.
8. The youth should first choose a characteristic that divides the trees into two groups, then choose a characteristic that separates the trees again, and so on. Each group should write down its key.
9. Have each group exchange its key with another group and see if the groups can identify the trees using each other's keys.
10. Have each youth complete section 2 of the project record sheet.

## Discussion

The youth's keys probably will not be similar to the key in the field guide to trees. The important lesson is that the youth learn to be observant and gain a sense of what characteristics are important in identifying trees using a field guide. Being observant is the first step toward identifying anything.

## Activity 3:

# Identifying Birds

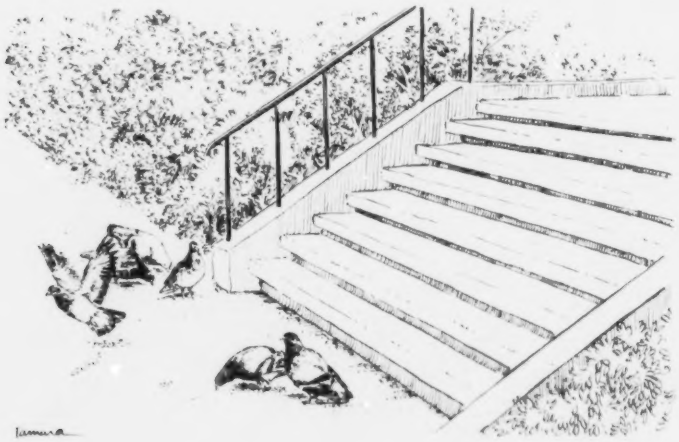
The best way to learn how to identify birds is to start with a bird that you already know. Then you can focus on the process of identification. That is exactly what you and your youth group will do in this activity.

### What Youth Discover

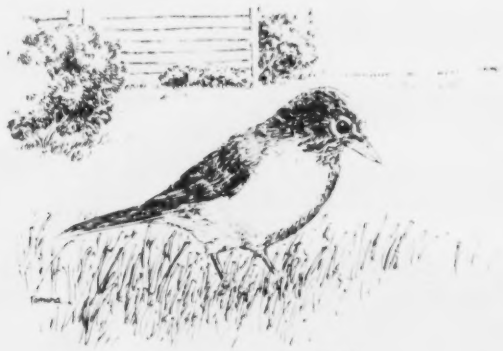
The important characteristics for identifying birds.

### What You Need

- a pencil or pen for each youth
- a project record sheet for each youth
- a notepad for each group
- a marker or chalk
- newsprint or a chalkboard
- pictures of each of the following birds: a pigeon, a robin, a crow (You can copy the pictures below for each group.)



Pigeons



Robin

Crows

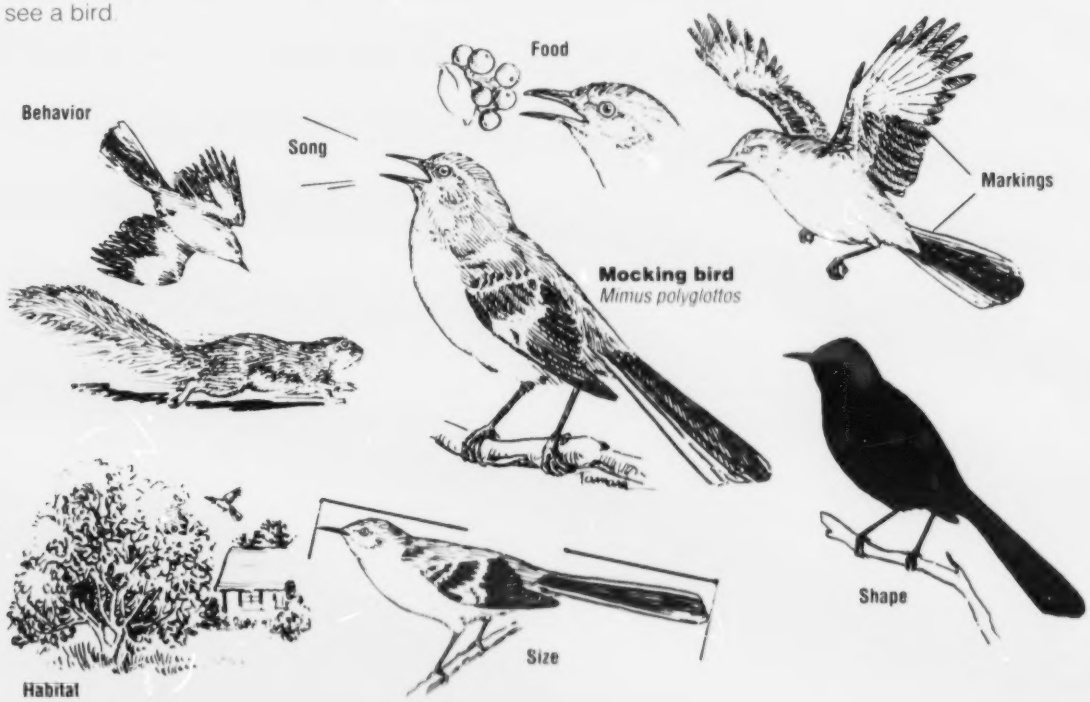
13

## What to Do

1. Give each youth a pencil or pen and a record sheet.
2. Divide the youths into small groups.
3. Give each group a notepad and the pictures of the birds. Be sure that at least one person in each group knows the identities of the birds as soon as she or he sees the pictures.
4. Ask each group to write down all the characteristics that help identify the birds. Examples are color, size, shape, and where the bird is shown in the picture (near a building, on a lawn, in a tree). Challenge them to think hard about what they observe when they see a bird.
5. Have each group share their information with all the youths by copying their notes onto the newsprint or chalkboard and discussing how they identified the birds.
6. You may want to take the youth outside to find a bird and note its behavior, its important physical characteristics, and where it is found. This will prepare the youth for the next activity, in which they will identify birds.
7. Have each youth complete section 3 of the project record sheet.

## Discussion

The youth have learned the basics of identifying birds simply by noting the characteristics that help them identify birds they already know. Review these characteristics with the youth so they understand how a bird field guide works. Be sure to include the following characteristics: size, shape, color, markings on the body, behavior, song, and area where the bird is found.




Characteristics used to identify birds



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## Activity 4:
# Using Tree and Bird Field Guides

In this activity, you and your group will take a short walk and use field guides to identify a few trees and birds. If you know the identity of a tree or bird, don't tell the youth. Allow them to use the field guides. And if you don't know the name of the tree or bird, don't worry! You and your group will learn to use the field guides together.

### What Youth Discover

Youth gain skills in using tree and bird field guides.

### What You Need

- several copies of a tree field guide
- several copies of a bird field guide
- a pencil or pen for each youth
- a project record sheet for each youth
- binoculars (optional)

### What to Do

1. Hand out the field guides. Probably not all the youths will have a guide so ask them to share.
2. Have the youth leaf through the field guides to become familiar with the organization of the guides. They should take particular note of the leaf, twig, and bud characteristics, which are probably in the beginning of the tree field guide. They also should become familiar with where the different kinds of birds are found in the bird field guide.
3. Take a short walk. Remind the youth to keep quiet so they will not disturb the birds.
4. Stop to identify a few trees and a few birds using the field guides. Go through the process of using each field guide with the youth. Then ask them to use the guides on their own. See how many are able to identify a tree or bird correctly. Assist youths who have difficulty using the guides.
5. Give each youth a pencil or pen and a project record sheet.
6. Have the youth complete section 4 of the project record sheet.

### Discussion

Although this activity focuses on using tree and bird field guides, the principles you and the youth learn apply to many other field guides. Encourage the youths in your group to look at and use other types of field guides to identify things they see in nature.

## Activity 5:
# Identification Scavenger Hunt

This last activity will give the youths in your group a chance to identify trees on their own. The youths can work together or you can make this activity a competition. Before you start, you will need to mark several trees for the youth to find on their scavenger hunt.

### What Youth Discover

Youth gain experience using tree field guides.

### What You Need

- lengths of ribbon or survey tape
- a marker and paper
- a copy of written directions to the trees for each group
- a notepad for each group
- a copy of a tree field guide for each group
- a pencil or pen for each youth
- a project record sheet for each youth

### What to Do

1. Go out and identify six to eight different trees. Be sure to pick trees that are relatively easy to find.
2. Mark each tree with ribbon or survey tape with a number on it. Write down each number and the identification of the tree on a piece of paper.
3. Write down basic directions to each of the trees. (Note: If your group has had training in compass use, you may wish to set up directions to the trees as an orienteering course.) Make copies of the directions.
4. Divide the youths into small groups.
5. Give each group a notepad, a copy of a tree field guide, and a copy of the directions to the trees.
6. Instruct the groups to find each tree, identify it using the field guide, and record the identification on the notepad. Have each group start with a different tree number so they do not all crowd around the same tree.
7. Give each youth a pencil or pen and a project record sheet.
8. Have the youth complete section 5 of the project record sheet.

### Discussion

Congratulations! You have succeeded in teaching the youths in your group how to use field guides. Encourage them to use field guides whenever they have the opportunity.

You and your group now may want to advance to 4-H projects that use your newly found identification skills. Several are listed in the section For Further Information, Activity Sources at the end of this guide.

Big-toothed aspen  Black spruce  Weeping willow  American elm

## Additional Activities

1. Go on a hike through a woods or park. Take along field guides and identify plants, animals, insects, animal tracks, and anything else that catches your eye.
2. Have your youth group make a field guide for other youths to use. Hold a session where your youths teach others how to use the field guide. Let the other youths practice identification with the field guide.
3. Make a nature trail. Identify various plants, animal signs, and other natural objects. Make signs that identify the objects and tell a little about their natural history. Invite other youths to use the trail. The 4-H guide *Nature Trails: Guides to Environmental Understanding* is a good reference.

# Field Guides Project Record

Name: _____

Date: _____

## Section 1A

- What did you do in activity 1A?

- By doing this activity, what did you learn about field guides?

## Section 1B

- Write down your group's key for identifying shoes.

- How is this key similar to keys used to identify things in nature?

## Section 2

- Write down your group's key for identifying trees.

- Draw a leaf from each of the trees. Point out the differences between the leaves.

- What characteristics should you notice when you are identifying a tree?

- Optional: Can you name the trees for which you made an identification key?

## Section 3

- What birds did your group identify?

- What characteristics did your group use to identify these birds?

- What characteristics should you notice when you are identifying a bird?

## Section 4

- What trees did you identify on your walk?

- What birds did you identify on your walk?

## Section 5

- List the trees you identified in the scavenger hunt.

- Do you feel comfortable using a field guide?

- From now on, will you use field guides to identify something you see in nature?

# For Further Information

## Field Guides

Many popular field guides are available from your local bookstore or library. For example, the Peterson field guide series includes more than forty different guides to living and nonliving things. There is also a Peterson "first guides" series. These simple guides include only the animals that you are most likely to see. The Golden guides (guides published by Golden Press, New York) are also simple to use and include guides to fossils, pond life, butterflies and moths, and weeds, among others. Finally, the guides in a third series, the Audubon Society field guides, are noted for their color photographs.

Local field guides to animals and plants in your particular state or region may be available through your Cooperative Extension office. For example, the field guide *Know Your Trees*, by J. A. Cope and F. E. Winch, includes the important commercial tree species in New York and would also be useful in Pennsylvania and southern New England. This guide, which uses a key, was last reprinted in 1985 and is available by asking for 4-H bulletin 147J 85 from Cornell Cooperative Extension ( order from: Resource Center, 7 Business and Technology Park, Cornell University, Ithaca, New York 14850).

A sampling of the Peterson field guide and first guide series is listed below. (They are all published by Houghton Mifflin Co., Boston.)

### Peterson Field Guides

*Animal Tracks*. 1974. O. J. Murie

*Butterflies*. 1979. A. B. Klots

*Eastern Birds*. 1980. R. T. Peterson

*Eastern Trees*. 1988. G. A. Petrides

*Ferns*. 1963. B. Cobb

*Insects*. 1970. D. J. Borror and R. E. White

*Mammals*. 1980. W. H. Burt and R. P. Grossenheider

*Reptiles and Amphibians of Eastern and Central North America*. 1986. R. Connant

*Reptiles and Amphibians of Western North America*. 1985. R. C. Stebbins

*Rocks and Minerals*. 1983. F. Pough

*Stars and Planets*. 1983. D. H. Menzel and J. M. Pasachoff

*Trees and Shrubs*. 1986. G. A. Petrides

*Western Birds*. 1989. R. T. Peterson

*Wildflowers*. 1986. R. T. Peterson and M. McKenny

### Peterson First Guides

*Birds of North America*. 1986. Peterson, R. T.

*Dinosaurs*. 1990. Kricher, J. C.

*Fishes*. 1989. Filisky, M.

*Insects*. 1987. Leahy, C.

*Wildflowers*. 1986. Peterson, R. T.

## Activity Sources


Birds, Birds, Birds! *Ranger Rick's Nature Scope*. Volume 1, Number 4. 1986. (Information and activities to teach youths about birds. Bird identification is included.)

Fazio, J. R. 1983. *Nature Trails: Guides to Environmental Understanding*, 4-H leader's guide L-5-4. Ithaca, N.Y.: Cornell Cooperative Extension. (An explanation of how to design and make a nature trail.)

Hawkes, J. E., and D. H. Phillips. 1988. *Birds in Your Backyard*, 4-H leader's guide 147L-5-1. Ithaca, N.Y.: Cornell Cooperative Extension. (Activities for identifying, attracting, and feeding birds.)

Krasny, M. E. 1991. *Wildlife in Today's Landscapes*, 4-H leader's guide 147L-5-20. Ithaca, N.Y.: Cornell Cooperative Extension. (An advanced 4-H guide focusing on urban and rare wildlife.)

Krasny, M. E. 1991. *Trees: Dead or Alive*, 4-H leader's guide 147L-5-22. Ithaca, N.Y.: Cornell Cooperative Extension. (Activities for observing life on trees and in forests.)

Krasny, M. E., and G. Neal. 1991. *Insects All around Us*, 4-H leader's guide 147L-5-23. Ithaca, N.Y.: Cornell Cooperative Extension. (Activities for insect observation.)

Trees Are Terrific! *Ranger Rick's Nature Scope*. Volume 2, Number 1. 1985. (Information about trees, including some activities on tree identification.)

Winch, F. E. 1975. *Know Your Trees*, 4-H member's guide M-5-3. Ithaca, N.Y.: Cornell Cooperative Extension. (An activity in which participants identify and collect leaf and twig specimens for mounting and exhibition.)




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